

HISTORY
OF THE
N. S. W. CORPS OF ENGINEERS

FROM THE RECORDS.

VOLUME I.
1869-1899.

BY
CAPTAIN C. STUART-CANSELL, V.D

Author of "RAILWAYS IN WARFARE."

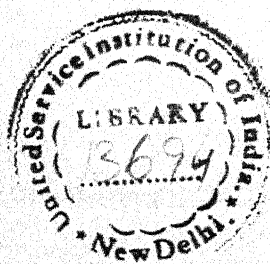
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PREFACE.

FROM _____

AT the solicitation of many officers of the Military Force and others interested in the career of the New South Wales Corps of Engineers, I was induced to undertake the compilation of this History. It has been written after a thoroughly exhaustive research of the Minutes of Proceedings, Correspondence, and other Records of the Corps, and of the columns of the daily Press. I have endeavoured to make the subject as succinct and authentic as possible, and I may add that many years' connection with the transactions of the Field Companies may be some apology for my taking in hand a work which I trust will be read with appreciative interest.

THE AUTHOR.

Sydney: January, 1899.

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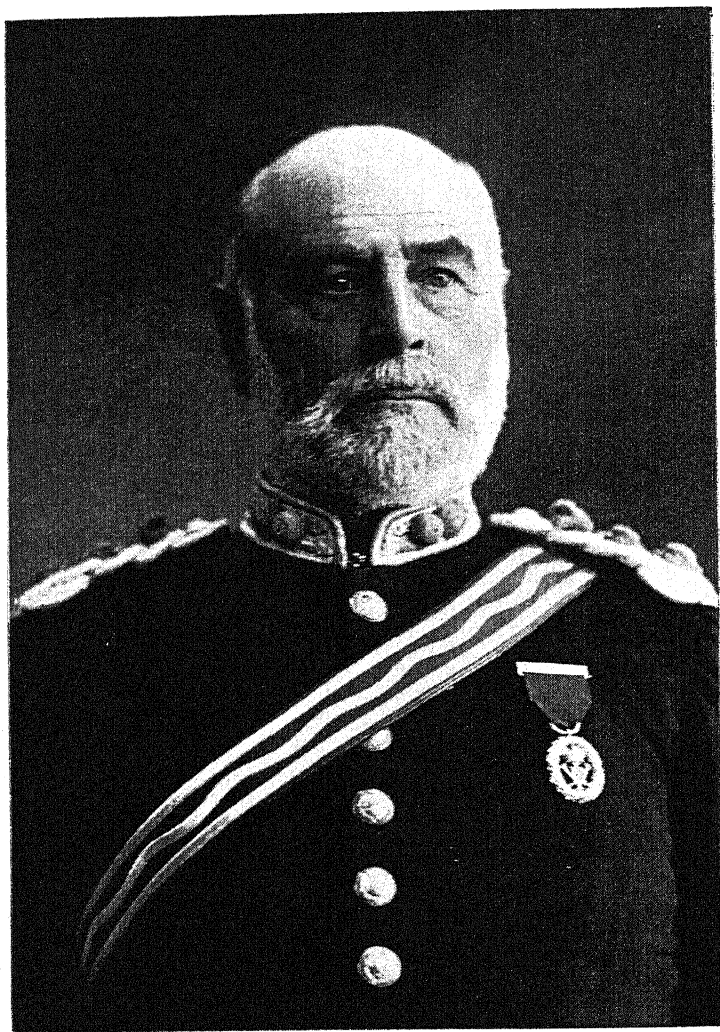
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PART I.

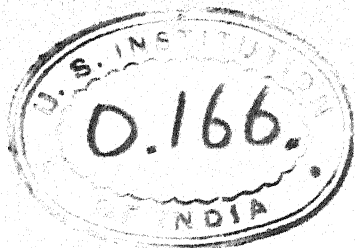
- Page 11, line 34—For "Fitzsimmons," read "Fitzsimons."
„ 32, last line—For "dual," read "duel."

PART II.

- Page 46, line 13—For "equal," read "equal."
„ 58, line 45—For "Henness," read "Henness."
„ 67, line 43—For "Jeykell," read "Jekyll."



COLONEL THOMAS ROWE, V.D., J.P., F.R.I.B.A.



HISTORY OF THE NEW SOUTH WALES CORPS OF ENGINEERS.

PART I.—THE FIRST ERA—1869-1878.

THE ORIGIN AND PROGRESS OF THE CORPS.

CHAPTER I.

Circumstances which ultimately led to the birth, growth and progress of the Engineer arm of the Military Service in this Colony may be said to have been initiated late in the year 1869, or twenty-three years after the inception and fifteen years subsequently to the establishment of the first colonial defence organisation. At that period a School of Design was inaugurated by many persons associated with the workshops of the principal mechanical engineering firms then in and around the city of Sydney—McArthur and Co. (Mort's Dock and Engineering Co.), Waterview Bay, Balmain; P. N. Russell and Co., Darling Harbour; and other establishments of a kindred nature. Classes were formed, composed principally of mechanics and skilled artisans, with a fair sprinkling of art students and modellers, who met in a room hired for the purpose in the School of Arts, Pitt street, under the immediate supervision of Mr. (afterwards Honorary Lieutenant) Thomas Hodgson. This gentleman, although not a professional engineer, had studied the more technical branches of art in the English science schools, where he had gained several certificates of honour, besides a gold medal. Upon leaving his native land, Mr. Hodgson repaired to New Zealand, where he remained for some time, holding a commission in one of the defence corps of that Colony, and seeing active service against the insurgent Maoris. Subsequently, upon settling in New South Wales, he located himself in Sydney, and being an enthusiast both in defence organisations and technical engineering instruction, civil and military, took upon himself the task of raising a corps of Engineer Volunteers, a branch of the service the want of which had hitherto caused a considerable hiatus in the military establishment of the country. In doing this, however, he had many obstacles to surmount. The Government of the day appeared to be reluctant to incur any additional expense for this purpose, and there seemed some doubt as to whether the right class of recruits could be enlisted in sufficient numbers. The utmost Mr. Hodgson

could do at first was to obtain authority to enrol the names of persons qualified and willing to join such a corps. In his endeavours in this direction he was ably assisted by Mr (afterwards Colour-Sergeant) Archibald Gardner, a clerk in the Sydney branch of the Royal Mint, and late of the Royal Engineers, and who was pensioned upon retirement from the Imperial service; Mr. (afterwards Quartermaster-Sergeant) George Bethel, a printer, but subsequently a homœopathic practitioner; Mr. Pembroke Lathrop Murray, then a journalist, afterwards Major of the 1st Garrison Division, New South Wales Artillery Regiment; and others who had by this time become deeply interested in the movement to form what proved eventually to be a very important adjunct to the defence forces of the Colony. They soon obtained between forty and fifty smart young men of the requisite professions and trades, two of whom, in 1896, still remained in the corps, viz., Mr. (afterwards Sergeant-Major of No. 1 Field Company) Thomas Herbert Ayton, by trade a painter, and Mr. (subsequently Captain Commanding No. 2 Field Company) Chas. Stuart-Cansdell, at first an engineering apprentice at McArthur and Co.'s establishment, and for many years after chief draftsman on the Engineer-in-Chief's staff of the Railway Construction Branch, Public Works Department. The embryo company assembled first at the School of Design, and afterwards regularly two or three times weekly in an apartment hired privately for the purpose at No. 137 King-street. This house, afterwards converted into an hotel, under the proprietorship of the well-known Mr. Gustave Wangenheim, became the offices of the Sydney *Daily Telegraph*, but later still was known as Quong Tart's tea-rooms. The members were drilled at first by a Mr. Banks, a gentleman who had been connected with the defence force in Victoria, and who volunteered his services, and afterwards by two or three ex-members of the Royal Engineers who had joined the corps. Ultimately all difficulties were surmounted, a drill sergeant instructor having been authorised by the Government to attend, and Mr. Hodgson and his *confreres* had the gratification of seeing the services of this body formally accepted by the military authorities towards the close of the year 1870. Of the number of recruits who presented themselves for enrolment, forty were selected as eligible, and sworn in prior to the 25th January, 1871. The following is an authentic abstract copy of the names on the official muster roll of that date:—David Firth Aitcheson, Thomas Herbert Ayton, James Bagot, Robert Calvert Bagot, George Bethel, John Buckland, Robert Buist, John Thomas Brown, Charles Stuart-Cansdell, William Carty, James Edward Court, Joseph James Croft, Walter Hampson Cooper, George Douglas, William Earle, Alexander L. Elphinston, Alfred J. Forbes, Thomas Fraser, Archibald Gardner, late R.E., Howard Granville, late R.E., James Greenfield, George

Haining, Edward Hawley, Perceval Hebden, William Hill, late R.E., Frederick Kirchen, George Lance, Thomas F. Lawn, Joseph Lipman, Thomas McKenzie, Arthur Payten, George Podmore, Francis Putman, John Sharp, Lane Sharp, John Shields, late R.E., John Jasper Stone, Joseph Turton, Charles Henry Watson, and Hubert Whitlock. Of this number exactly one-third were Australian-born, the remainder hailing from Great Britain or Ireland. From this period until 1893 the Victoria Barracks, Paddington, was the head-quarters, and as a rule the general mustering place of the corps.

Strange to say, Mr. Hodgson did not enlist, nor does he appear to have sought office in the very corps which had been founded after his own heart and solely by his energy and indomitable assiduity. The Government first appointed to the command Captain Gother Kerr Mann (late of the Bombay Horse Artillery), who had just then retired from the position of Engineer-in-Chief of the Cockatoo Island (Sutherland) Dock, Parramatta River. This gentleman, of whose relations many had for years past been associated with the Corps of Royal Engineers, received his military education at Addiscombe, and, going abroad, entered the service of the Honourable East India Company, whence he came to this Colony, and, after supervising the erection of many Government works, such as the Victoria Barracks and other buildings, under the direction of Colonel Gordon, commanding Royal Engineers, accepted the civil appointment referred to. Captain Mann, although posted to the corps by virtue of a letter of appointment from the Hon. the Colonial Secretary, was, however, never gazetted to the position, and did not remain long in the honourable trust assigned him, for, after attending but one assembly of the corps, he retired from the command, informing the authorities that urgent private affairs prevented his being able to afford the necessary time and attention which would be required of him. In the meantime recruiting went on apace until the middle of the year, when the full complement of 60 men had been enlisted and passed into the ranks. Among these were Mr. (afterwards Corporal) Adrian Charles Mountain, M. Inst. C.E., then a draftsman in the City Surveyor's office, and afterwards City Engineer of Melbourne, and several other professional men, notably Mr. (subsequently Colonel commanding the Corps of Engineers) Thomas Rowe, J.P., F.R.I.B.A., a prominent architect of extensive practice and many years' standing in the Colony, and who twice held the presidency of the Metropolitan Board of Water Supply and Sewerage. On the 5th May, 1871, an order appeared in the Government *Gazette* to the effect that His Excellency the Governor, with the advice of the Executive Council, had been pleased to transfer Captain Edward Orpen Moriarty from the command of No. 1 Battery, Volunteer Artillery, to the command

of the Engineer Volunteer Corps. It is a matter of strange coincidence that the two first selected commanding officers of the Engineer Corps were associated as far back as 1855 in the premier volunteer corps of artillerists in New South Wales, Captain Mann having been the commanding officer and Captain Moriarty a gunner in the corps referred to, which, from all accounts, appears to have been considered a *corps d'elite*, containing as it did among its rank and file some of the most prominent and influential colonists of the day. Captain Moriarty, at the time of his new military appointment, held the position of Engineer-in-Chief for Harbours and Rivers, and upon leaving the artillery branch of the force was the recipient of a very handsome sword in recognition of his past services. The corps attended for the first time a Queen's Birthday review, which upon this occasion was held in Moore Park, just about then dedicated to the public use, instead of in the Outer Domain, where all parades of this kind had been formerly conducted. On the 6th of June a brigade order was issued stating that the Commandant Lieutenant-Colonel (afterwards Major-General and C.B.) John Soame Richardson was pleased to approve of the following appointments being made in the corps :—Mr. A. Gardner, colour-sergeant; Messrs. J. Turton and W. Hill, sergeants; Messrs. J. Stone, W. Earle and J. Shields, first corporals; and Messrs. T. Fraser, G. Haining and H. Whitlock, second corporals; and, three weeks later, Sapper G. Bethel was appointed quartermaster-sergeant. The corps was in July instructed in entrenchment drill by Colour-Sergeant Gardner, having hitherto been well grounded in infantry drill only by Brigade Sergeant-Major James Hill (subsequently Major and Adjutant of the 3rd Regiment Partially-paid Infantry), who for a considerable period evinced an especial pride in its advancement. The entrenchment drill was continuously practised for a long time in addition to the ordinary infantry duties. In the by-laws of the company, finally approved by the Governor-in-Council, among other matters, power was given to raise monthly subscriptions from the members, so non-commissioned officers were told off to the charge of their respective squads to collect the funds. The first commanding officers' parade took place on the 22nd July, and a general meeting of the corps held at the Victoria Barracks to elect a committee of management of its affairs followed on the 26th of the same month. At this assembly, presided over by Colour-Sergeant Gardner, the following members were duly elected by ballot to serve as a committee for the year 1871 :—Sergeant Turton, Sapper Mountain, Colour-Sergeant Gardner, Corporals Shields and Fraser and Sapper L. Sharp, in conjunction with the commissioned officers, who, of course, were by virtue of the rules *ex officio* members. Of this number Sapper Mountain and Colour-Sergeant Gardner were appointed respectively honorary secretary and treasurer, posts

occupied by them with great credit for a considerable period. Committee meetings to guide the interior economy and professional working of the corps were ordered to be and were held once a month, and at one of these meetings Mr. Hodgson, in recognition of his services as founder of the provisional company, was unanimously elected as the first honorary associate member under the conditions obtained in the then Volunteer Force Regulations.

On the 10th August Corporal J. Shields was promoted to lance-sergeant, and Sappers John F. Robertson, J. Sharp and A. C. Mountain were appointed lance-corporals. Upon the Saturday following all the non-commissioned officers were paraded at the Circular Quay, proceeding to the North Shore for the first instruction in gabion and fascine making, which was a preparatory drill to several of a like nature for the company generally. About this time the corps, which had from the start adopted the smart forage cap similar to that worn by their artillery comrades, but with a white band, was supplied with peaks to the same in consequence of a resolution to that effect having been adopted in deference to the wishes of the majority of the members. The full dress was the same as at present, excepting that a busby was in use of a pattern similar to that then worn by the Royal Engineers. The undress jacket was of red serge, and the trousers of dark blue cloth with a red stripe, as at present worn in review order. A general meeting was convened late in September to consider the condition of the company with regard to its second lieutenantcy, Mr. Thomas Rowe having been meanwhile assigned the position of first-lieutenant. The then Superintendent of Electric Telegraphs, Mr. Edward Charles Cracknell (afterwards Lieutenant-Colonel Commanding the Partially-paid Submarine Miners), was nominated as a candidate for the position, and communicated with to that effect. To this request Mr. Cracknell replied that he would shortly have to join an additional company of the Naval Brigade which had been recommended by the Defence Commission, and about to be formed as a Torpedo and Signalling Corps, but that in the meantime he would be willing to accept. To consider these terms a special general meeting was called on the 22nd of November, at which the secretary received instructions to inform Mr. Cracknell that his services could not be accepted under the conditions specified by him. The first half-yearly inspection by the Commandant, Lieutenant-Colonel Richardson, took place on the 16th December. The closing events of the year 1871 embraced the ordering of an election and appointment of two subaltern officers; the holding of a scratch company subscription rifle match on the Paddington range; and the instruction in a course of musketry in which Sappers James Ruddle and Alfred Windle qualified as marksmen for the year, the former having the honour of being the premier best shot in the corps.

CHAPTER II.

Early in 1872 Mr. Hodgson founded a Technical Military School for the instruction of the Volunteer Force. The scheme did not meet with the success it deserved, though it was highly commended by the head-quarters authorities. For these services, however, Mr. Hodgson received an honorary lieutenancy on the Volunteer Staff. The new year of the corps was inaugurated by a night march out on the 31st January. On the 2nd February Private Edward Henry Arnheim, of the Goulburn Rifle Volunteers, by profession a surveyor, was transferred to the corps, apparently with a view of becoming eligible for the vacant commission as second-lieutenant, for having been invited, within a week's time of his joining his new comrades, to accept the proffered position, he was duly elected at a special meeting of members. The corps took part in the general parade to signal the departure from the Colony of the Governor, His Excellency the Right Honourable Somerset Richard, Earl of Belmore, P.C., on the 21st February, when a guard of honour was posted at the Circular Quay. Both the subalterns were now holding their commissions provisionally, but early in April brigade and corps orders were issued to the effect that, as Thomas Rowe and Edward Henry Arnheim, Esquires, had passed the required examination, they were respectively appointed first and second lieutenants of the corps. On Saturday, 24th April, the company for the first time took a prominent part in a sham fight, acting as a part of an attacking force from Botany Bay. This affair was commonly alluded to for a long while afterwards as the "Battle of Bunnerong-road." At a point upon this road where a bridge had been only partially constructed across a creek, it was found necessary to prepare a roadway for the field artillery over the soft bed of the watercourse channel in lieu of erecting an improvised structure across the gap, which could not be done in default of sufficient time and means. Vehicles hired for the transport of the necessary material and appliances were escorted upon this occasion by a guard in the orthodox military fashion. The attack was made early in the afternoon, and the position to be held and crossed, situated as it was under the extensive command of a hill within easy rifle range, and occupied by a strong force of the gallant defenders, would have proved a hot

one in the case of actual hostilities. However, the field guns were got over safely, and quickly advanced, supported by the engineers and the infantry which had forded the creek some time previously. Old members of the corps have vivid and amusing recollections of the strenuous exertions made to complete the work under such conditions, hampered as the rank and file were, working on a very hot day in heavy tunics, with long Enfield rifles slung across them. Had the engagement been a real one, few, if any, of the corps could have survived, under such circumstances, the galling fire to which they were subjected while engaged upon their engineering duties. Early in the month of May there were distributed to members copies of the first military engineering instruction book imported specially for the use of the corps. This was a Sapper's Manual, for the use of the auxiliary forces of the Empire, edited by a Captain W. A. Frankland, of the Royal Engineers, but which, of course, has long become obsolete on account of rapid changes in the style of warfare. The metropolitan forces had about this time a party of musicians attached to them, and known as the Brigade Band. The Engineers, having derived considerable musical consolation from this band, especially at general review parades and marches out, generously subscribed a sum of three guineas per annum to its support, which contribution was considered a fair return when bearing in mind the fact that the corps, always occupying the place of honour or precedence at the head of the column, consequently got most of the band if not of the melody, and such an arrangement was, moreover, most economical. In the month of June, Lieutenant Rowe, during the temporary absence of Captain Moriarty, assumed command of the corps, which attended the reception of Sir Hercules George Robert Robinson, G.C.M.G., the then new Governor. The first annual meeting of the company was held after drill on the evening of the 3rd July, at which Lieutenant Rowe presided. At this gathering it was determined to reduce the monthly subscription of membership from one shilling to sixpence, and also resolved that the corps should wear white cotton gloves similarly to the Artillery at full dress parades and reviews; and the Committee of Management were all re-elected. Members, annoyed at the indifference shown them by the "powers that be," had become impatient of waiting for proper professional recognition. Something more than a mere infantry *role* was necessary on their part, and the corps, having drifted along, as it were, day by day in such a capacity only, attempts were now to be made to obtain the ways and means of military engineering duties. To this effect a resolution was unanimously carried—"That the Commandant, together with the officers of the corps and the mover, Corporal Mountain, honorary secretary, be requested to form a deputation to wait on the Hon. the Premier and Colonial Secretary, Mr. (afterwards Sir) Henry

Parkes at an early date, for the purpose of asking the Government to increase the present corps limit of sixty men to the strength of a full company of one hundred and twenty, as the former number is too small to be of any practical utility, and bears no proportion whatever numerically to the other branches of the Volunteer service; also for the purpose of bringing under the notice of the Government the urgent necessity that exists for a suitable modelling and practising room, and for such tools and appliances as are essential to the proper instruction of an Engineer Corps in the technical and most important part of their duties." In accordance with the terms of this resolution, the Hon. the Colonial Secretary was written to, to ascertain whether he would receive the deputation, and if so, to name a convenient time. It was not until after a second communication had been forwarded that a reply was received on Friday, the 1st August, appointing 11 o'clock that very same day as the time for the reception of the deputation. Although at so short a notice, Captain Moriarty, Lieutenant Rowe and the Secretary waited upon Colonel Richardson to ask him to form one of the party, but he said such a course was irregular, and promised to recommend the purport of the application should the officers consent to let the deputation lapse, which, by consent of the Hon. the Colonial Secretary, was accordingly done. The Commandant subsequently promised to recommend that the corps should be increased to one hundred men. With regard to this matter, members seemed very determined not to let the grass grow under their feet, for at a committee meeting held on the 7th August, presided over by Lieutenant Arnheim, a motion was carried to the effect "That the Secretary be instructed to draw up a request to Captain Moriarty setting forth the necessity which so urgently exists for an additional number of men being admitted into the corps." At this meeting also, the members, with a view of assisting their claims, and to show that they were in earnest, contributed towards the object by voting a sum of money for the purchase of materials with which to construct a modelling table, and sanction also was given to the hiring of a room at the Victoria Barracks from Sergeant-Major Lees at a nominal fee weekly for a term of six months. Orders were now received from the Brigade authorities to construct a three-gun battery at the southern end of the officers' quarters at the Victoria Barracks, and work was commenced on the 10th August, the Engineers being assisted by a working party of 100 men drawn from the suburban battalion of Rifles. The object of this battery, irrespective of its being practice for the corps, was stated at the time to be to command the southern and south-western approaches to the city from the direction of Botany. This work, which can still be seen, was, however, never thoroughly completed. Mention

must be made of the indefatigable exertions of Sergeant Hill, who was always a hardworking and painstaking man, and to whose energy is mainly due the existence of the earthworks mentioned. The attempts hitherto made to further the advancement of the Engineers were not without beneficial results, for a notification published on the 23rd August to the effect that the corps would be increased to one hundred men, and that the requisite amount of money for the extra clothing, etc., had been placed on the Supplementary Estimates for the year, was hailed with great satisfaction. On the 12th of the following month recruiting commenced for the increase of the establishment to the corps, the detachment referred to obtaining and retaining to this day the *soubriquet* of "The Forties," on account of that being the number required, and by the 20th December following the whole squad was passed into the ranks. The subjoined list of those recruited under these circumstances is from the official muster roll of the corps:—Edward H. Burbidge, Henry Coburn, Patrick Collopy, John Cordingly, Henry Cripps, Henry E. Davis, Edmund Davis, Edward J. Davis, George Douglas, William Fennell, Alfred Hughes, Robert Hunter, John D. Kiely, Frederick King, John B. Mather, James Meehan, Thomas Milligan, William Morris, William Henry Nixon, William Langdon, Anthony Lenehan, Walter Nairn, Thomas Samuel Parrott (afterwards Major Commanding the Field Companies), Henry J. Pitt, Charles Parsons, Thomas Phillips, John Smith, John Shearer, William Spence, James Tapp, John Tapp, Frederick W. Turton, William J. Turton, William Thomas, Frederick E. Watson, and William Wilson. Meanwhile between the formation of the corps and the advent of "The Forties," a large number of casualties had been recruited, and many of these aided in shaping the destiny of the corps. The first international shooting match among members took place on the 28th September. A week after the corps attended the funeral of Major Arthur Frederick Fitzsimmons, Major of Brigade and commanding the New South Wales Permanent Infantry, a favourite and zealous staff officer. On the 19th October the company had the honour of parading with the Permanent Infantry for battalion drill at the Victoria Barracks. A special general meeting was convened on Wednesday, the 23rd October, and presided over by Lieutenant Arnheim, who stated the object of the assembly was to form an "Engineer Rifle Club" in order to obtain improvement in shooting. Rules were adopted, and office-bearers and committee elected, and upwards of thirty names enrolled, with the anticipation that the number would be soon greatly augmented. In discussion it was resolved—"That, notwithstanding the disadvantage the company would labour under in having only the old converted Enfield rifles to fire with, the Engineer Corps should be represented at the approaching

Rifle Association meeting by sending a team of ten men to compete in the 'Company Match.' Lieutenant Arnheim was elected President, and Lieutenant Rowe Vice-President, while Sergeant Gardner and Corporal Mountain respectively undertook to perform the same onerous official duties in connection with this club as they had hitherto done for the corps proper, and shooting competitions were in operation by the 1st November. During the latter part of this year the evening parades were conducted within the precincts of the Courthouse at Darlinghurst. The marksmen for the year were Sergeant J. Turton (best shot in the company), Sergeant Shields, Corporals Haining and Whitlock, and Sappers McKenzie, Buist, Windle and Edward Arney.

CHAPTER III.

The commencement of the year 1873 was celebrated by a march out one evening, and on the 22nd January orders were received to the effect that all officers and non-commissioned officers were to hold themselves in readiness during the next month to go through a course of army signalling by day and night. On the 13th March, Corporal John J. Stone was promoted to the rank of sergeant. The sudden outburst of enthusiasm previously displayed on behalf of the Rifle Club fell as quickly to a very low ebb, only twelve members handing in their subscriptions, and in consequence contemplated competitions did not take place. However, in response to a friendly challenge, the first rifle match, one with the South Sydney Company, was fired off on 29th March. The memorable encampment of a force of 1600 men, together with a few college cadets, held at Ham Common, in the vicinity of Richmond, during Easter, was the first of its kind in the Colony, and lasted four days under—to use the words of the Commandant when subsequently thanking the troops for their attendance—"exceptionally trying circumstances"; for during almost the whole time the rain poured down incessantly. Quite heedless of this and the fact that only a limited number of overcoats could be supplied by the authorities to the various corps requiring them, all duties were unflinchingly carried out, whether in camp or upon flying column. Attacks upon the camp at all hours of the night, too, were a common occurrence, and, by reason of no order at that time to the

contrary, bodies of men approached one another too closely, so that under great excitement there were many real hand-to-hand fights. There were a few amusing episodes also in connection with the Engineers, who, to the chagrin of the sixty-seven members present, acted throughout this training as a party of infantry only. Upon one occasion, during a feint attack on a certain flank of the camp, a sapper named William Steel had the stock of his rifle cleaved by a sword-cut made at him by an artilleryman belonging to a field-gun detachment acting with the defenders, and much rough and tumble ensued, but fortunately without serious bodily injury, though it was a common thing to see rifles fired off within a pace or two of the combatants' faces. To witness a burly Highlander escorted as a prisoner of war by two diminutive cadets was indeed a graphic scene. A certain very excitable commanding officer, too, who shall be nameless, observing upon one occasion a battalion of garrison artillery, acting as infantry, drawn up at a short distance from his company, ordered his men to fix bayonets, and, waving his sword high in the air, called upon them to "charge and cut the enemy down and annihilate them!" Fortunately his men did not heed, thinking possibly that their superior officer had suddenly become bereft of his senses. It should be mentioned that the regiment threatened with slaughter had been judged out of action by the umpire, because sufficient ammunition had not been served out to it. A sapper, who, amongst many tall men in the corps, rejoiced in being the tallest man (six feet two inches), came in for a fair share of notoriety for having volunteered to act as officers' servant, he was duly installed in that capacity, but did not turn out a success. Whether by reason of an attack of melancholia, brought on by his having to clean his master's boots or some circumstances equally dispiriting had preyed upon his mind, he nevertheless solaced himself by consuming the wine committed to his care. Partly on account of his being an exceedingly funny man, his graver eccentricities were at first overlooked, but a couple of trials showed his failing, and he was relieved of his apparently too onerous responsibilities. But to return to the sober side of this history. Promotions took place on the field as it were, Sappers Hawley, Stuart-Cansdell, McKenzie, William D. Newton and Parrott being appointed lance-corporals, and high praise was accorded Quartermaster-Sergeant Bethel for the effective manner in which he tended to the comfort of the corps while under canvas. On Tuesday, the 6th of May, the company under Lieutenants Rowe and Arnheim took part with the other arms of the service in the public funeral tendered to the remains of William Charles Wentworth, patriot and statesman, interred close by his late residence, "Vaucluse," Watson's Bay. This affair was rendered most interesting by the fact of its being the first public funeral in the Colony which had been authorised by the resolutions

of Parliament, commissioners having been appointed to carry out arrangements to recognise nationally the life-long services of this distinguished colonist, who had died in England while on a visit. A week later a special meeting was called to decide whether the Rifle Club should be carried on, as more energy was required to make it a success. At the second annual meeting of the corps, held on the 9th July, there were upwards of seventy members present, presided over by Captain Moriarty. The report for the year ending 30th June stated, among other matters, the just pride in the interest manifested by all members, no other company in the Colony having such a high percentage in attendance at drills, the whole of the corps, with but one exception, being efficient. Monthly subscriptions were again raised to one shilling, principally to meet the contemplated contingent expense of a brass band of twelve performers. The idea having been sanctioned, a special subscription list, headed by Lieutenant Rowe, was also opened for the purpose. The "Young Australian" Band applied for service, but their terms, about £100 per annum, could not be accepted, and this, as well as very many subsequent attempts to establish a band in connection with the corps, failed. Lieutenant Arnheim, to encourage practice, generously presented a silver cup for competition among members of the Rifle Club. Money had hitherto been lavished upon advertisements announcing the weekly drills, and, in order to economise, notices in the daily press, except in very special cases, were now discontinued. The construction of two iron pontoons and one iron gabion was authorised, together with miniature sandbags and gabions, to a scale of $\frac{3}{4}$ inch to one foot, for modelling purposes. Mr. J. J. Coates, Civil Engineer, at one time a subaltern in the Auckland Engineer Volunteers, and who had been admitted an honorary member of the corps in 1871, was elected a life member in consideration of his generous gift of £10, to be divided equally between shooting and modelling prizes. The retiring committee was re-elected, with the exception of Sergeant Shields, who had resigned, and whose place was filled by Sergeant William Hill. For a long while past Captain Moriarty had apparently become indifferent to the welfare of the corps under his command, and his continual absence from meetings and parades since the commencement of the year had called forth from members many unmistakeable murmurs of discontent. Reference to the Captain's prolonged absence had been made very pointedly in the report adopted by the committee managing the company's affairs for submission at the general meeting. A paragraph of this report alluding to the matter ran as follows :—"There is one subject causing serious regret to the committee, and which has also, it is to be feared, tended to retard the progress of the company to a great extent: which is, that Captain Moriarty so rarely finds it convenient to attend the drills and parades of the corps. This is

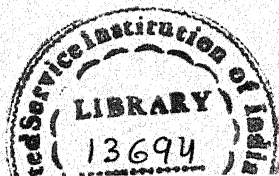
greatly to be lamented, as from his position as commanding officer his frequent presence would be the means of infusing additional interest in and vigour to the proceedings of the corps. The committee venture to express a hope that in future adverse circumstances may not arise to prevent the members of the corps from having Captain Moriarty often amongst them." To these remarks Captain Moriarty replied in writing upon the margin of the report:—"I disapprove of clause 5 of this report, as I do not consider that it is in accordance with due discipline that comments in reference to the Commanding Officers of the corps should be introduced into the yearly reports. I have, therefore, to order its omission."

On the 1st August an application was made to Francis Campbell Brewer, Esq., the then honorary secretary of the New South Wales Rifle Association, to which the corps contributed an annual subscription of three guineas, to arrange a match at the next meeting for those volunteers armed with the Snider rifle. Notwithstanding many appeals, the first prize meeting in connection with the Rifle Club, and announced for the 9th September, fell through for want of adequate support. During this month Sergeant Hill was appointed Senior-Sergeant, and all the sergeants were examined as to their fitness for office. A company rifle match, the first of its kind in the corps, which had been postponed until after the Rifle Association meeting, eventually came off on Saturday, the 15th November. This affair was in response to a desire on the part of some of those members, commonly known as the "last forty," who joined the company, to compete against an equal number of the "first sixty," of which the company was originally composed, and the challenge was initiated by Corporal Parrott on behalf of the representatives of the "forties." It is presumed that, partly in consequence of questions asked in the Legislative Assembly as to the number of parades attended by the officer commanding the Engineer Corps during the then past twelve months, and also partly on account of the little unpleasantness in connection with the last annual report of the committee, Captain Moriarty resigned his command, for a notification to the effect that he had retired upon his rank appeared in the Government *Gazette* of the 5th December. Lieutenant Rowe now assumed command.

CHAPTER IV

Candidates were solicited for the vacant lieutenancy early in the year 1874, but there were apparently no suitable applicants. Corporal Mountain, who it was thought would possibly accept a commission, was about this time appointed a surveyor in the Railway Department, and this engagement necessitating his constant absence from Sydney, he resigned on the 22nd of January the honorary secretaryship, an office he had occupied with zealous ability since the inauguration of the managing committee in July, 1871, and for his services was accorded a letter of thanks. By request an emblematical design for the embossment of official correspondence paper was prepared by Colour-Sergeant Gardner, and an approved die for the stamp was forthwith obtained. This seal represented an old-fashioned star-fort with five angles, flanked by redan-shaped tambours, encircling the name of the corps. Lieutenant Arnheim presided at the first annual meeting of the Rifle Club on the 18th February, when Corporal Parrott was appointed secretary in lieu of Mr. Mountain, and Corporals Haining, Fraser and Whitlock, and Sappers Carty, Thomas, Wilson, W. J. Turton, Lenehan and Nixon were elected to act as a committee. Rifle shooting had not been at all popular so far, and greater efforts than ever were now made to throw some life into the movement. By order of the Commandant, a dozen Henry rifles were issued to the company to practice with, members competing for the possession of these arms regularly every quarter. Up to this time the corps had not had a regular professional instructor, but directions, however, were given on the 25th February to advertise for a person qualified and holding certificates of recent service as a non-commissioned officer of the Royal Engineers. At a meeting to discuss the question of a change in the colour of the undress uniform, it was decided to retain the red, but also to don white patrol jackets during the summer months, and in March the wearing of busbies was discontinued, fully twelve months elapsing before helmets were substituted. Promotions took place on the 12th May as follows:—Corporal T. Fraser to the rank of sergeant, and Lance-Corporals Granville, Hawley, McKenzie, Stuart-Cansdell and Newton to the rank of corporal. The corps attended the second encampment, from the 23rd to the 25th May inclusive, at Campbellfields, now known as Minto, and

about nine miles beyond Liverpool. For the first time a little engineering was done. A redoubt commanding the left wing and a redan with gun-pits protecting the left front of the camp were constructed. The first essay in mining was also attempted here after the grand review. Under the direction of Sergeant Hill, a well-tamped 14-lb. charge of gunpowder was placed close in under the counterscarp of the ditch of the redoubt. Notwithstanding a cordon of men being stationed round about the limit of danger, civilians, out of curiosity, would encroach upon the ground, and one venturesome rustic on horseback, persisting in riding furiously to and fro about the mine-field, had a very narrow escape. As it was, some clods and pieces of timber found their way among the tents at a considerable distance, and the Commandant's private carriage, containing a party of ladies, was also in too close proximity for a safe observation of the display. Sir Henry Parkes, the Premier, was nearly struck by a large piece of earth, and Captain William Beavor Blaney Christie (afterwards Colonel and Acting-Commandant), the Major of Brigade, apparently thinking that the dummy shot up into the air by the force of this explosion was a human being, cried out, "My God! My God! here's another Melbourne affair!"—the recent fatal accident to Corporal Alexander, of the Victorian Engineer Volunteers, being fresh on his mind. However, the two incidents were dissimilar, for whereas in the one case a soldier was unfortunately blown up, to the delight of the numerous spectators, who in their ignorance thought it only a dummy and a part of the programme, in the other it was but merely the violent raising of an effigy. But all is well that ends well, and if judged by the din, dust and excitement occasioned by the explosion, the affair was indeed a great success. As at the previous encampment at Ham Common, much work was crowded into the short period allowed for the various duties and exercises, the weather, too, on the whole, being again unfavourable. Among the 1775 men and cadets present upon this occasion, the fifty-two Engineers worked creditably, but an unfortunate circumstance occurred, which rather tended to mar the otherwise smooth lines of their career. On the last day of the training a sapper, having obtained a permit to leave camp in the afternoon in order to visit Campbelltown, distant about five miles, returned under the influence of drink, and offered violent resistance to the quarter-guard, in the scuffle drawing his bayonet, which, by-the-way, he had no business to be carrying at the time. He was, however, soon made a prisoner, and isolated in a tent under strict surveillance. This man, having hitherto borne an excellent character, and always appearing to be an exceedingly quiet and inoffensive person, had most probably been drugged in the township; at least this was the general impression at the time. And so upon a Court of Inquiry assembling soon after, his conduct resulted in only a severe



reprimand being administered, in consideration of his previous very good behaviour. Colour-Sergeant Gardner, Quartermaster-Sergeant Bethel, Sergeants Hill and Fraser, and Corporal Parrott were all mentioned for their special services in camp. Stimulated by the issue of better shooting weapons, members took a keener interest than formerly in rifle contests. Rules were framed for their guidance, and Sapper Carty undertook the duties of assistant secretary, an additional office, with the committee, and on the 13th June monthly prize meetings commenced, and have ever since been regularly conducted up to the present day. Lieutenant Hodgson, the father of the corps, died on the 26th June. The company furnished a firing party at his funeral, and his widow acknowledged in feeling terms the many expressions of condolence and practical sympathy tendered her. Two years afterwards the members not only subscribed the cost of but also carried out the work in connection with a suitable memorial erected over his tomb at the Necropolis. Lieutenant Rowe presided at the third annual meeting of the corps on the 8th July, when 80 members were present, the event being celebrated by a supper later on. Corporal Parrott's appointment as honorary secretary, which he had held from the beginning of the year, was confirmed, and the committee elected comprised Sergeants Hill and Turton, Corporal Haining, and Sappers G. Lance and Carty. Sergeant Hill received a special vote of thanks for a presentation to the corps of models of his own handiwork, comprising a field powder magazine, single-lock and pontoon bridges, and a single-gun battery. Lieutenant Rowe, who had been in charge of the company since December, having passed the necessary examination, was gazetted Captain on the 21st July. On the 17th August many members attended the funeral of Staff-Commander Gowlland, R.N. Three days later Second-Lieutenant Arnheim was promoted to the rank of first-lieutenant, and Corporal Parrott, who had been nominated some time previously for a commission, was posted to the junior lieutenancy, *vice* Arnheim, promoted. Regular practice with the rifle was now thoroughly established, for on the 22nd August no less than 25 members were engaged in competition for prizes, and five weeks later, in a return match with the South Sydney Company, the Engineers lost by only three points in a score of 484, whereas in the first contest, on the 29th March, 1873, when the shooting powers of the corps had not been developed under the direction of a club, the match was lost by more than one hundred points. On the 30th September Corporal Haining was appointed lance-sergeant. An address reviewing the duties appertaining to a Corps of Engineers was delivered by Lieutenant Parrott on the 19th November at the Victoria Barracks upon the occasion of the opening of a class for technical instruction in military engineering. This class was in a great measure intended to replace, at any rate



WARRANT OFFICER JAMES MASTERS.

as regards the Engineers, the want of a school such as that inaugurated by Lieutenant Hodgson in 1872, but which, although thrown open to everybody in the service on payment of a trifling fee, never gained popularity, and fell a victim to a languishing demise. The address was printed at the expense of the corps in a pamphlet form, with an appendix containing a glossary of terms commonly used in field fortification. On the 23rd December the metropolitan and suburban College Cadets were attached to the Engineers for the purpose of practising battalion drill, but this disposition lasted but a few months. At the close of the year there was a working parade to begin the construction of a three-gun, half-sunken battery at the Victoria Barracks. Here this, the second earthwork raised by the corps, was made on the site now occupied by the School of Gunnery facing the eastern side of the parade ground. After all but little engineering work had been performed during the year, signalling and infantry drill and attendance one evening a week at the technical class predominating. In the musketry course of this year the corps secured second place as regards the number of marksmen, the Orange Rifles obtaining 26 and the Engineers 25 badges. The relative rank of merit with the whole force was fourth out of thirty-three companies competing. This proud position was indeed greatly due to the good tutorage of the affiliated Rifle Club. The regulations of the force were now amended to the effect that in the future there would be but one inspection of the company during each year instead of two, as heretofore. It is a matter of congratulation that, although by reason of the cessation of recruiting to the force in general early in the then current year, consequent on the Government resolving not to incur any further liability in respect of granting land orders (which system of reward for a single five years' continuous and efficient service had been in vogue more than three years prior to the formation of the Engineers), the corps was still nearly at the maximum of its strength, 92 members remaining on the roll, of whom two-thirds were efficient, thereby proving their patriotism had not departed, and also that, contrary to public insinuation, they were not merely serving for a free grant of fifty acres of Crown land

CHAPTER V.

The year 1875 was ushered in by the usual march out on the evening of Anniversary Day, the 26th January. A board of officers was convened on the 24th March to examine Mr. John Dermott Herlihy as to his fitness for the position of instructor to the corps, with the result that a few days subsequently he was appointed to the Volunteer Permanent Staff on three months' probation with the rank of sergeant. Sergeant Herlihy had joined the Bombay Sappers and Miners at the Royal Engineer Establishment, Chatham, in April 1860, being one of a batch of men specially selected to be trained for service with Her Majesty's Indian Engineers by Major (afterwards the renowned General) Gordon. These troops were nicknamed "Blackstraps" by their Royal Engineer comrades, in consequence of a remark to that effect having been made by Field-Marshal His Royal Highness the Duke of Cambridge, K.G., when these troops marched past him at a review. In 1861 Sergeant Herlihy embarked for India, where, having qualified in both civil and military engineering for employment in the Public Works Department, he was placed upon the unattached list in 1864, being engaged in the Bombay Presidency upon survey, canal construction, erection of buildings, etc., until detailed for foreign service in Abyssinia in 1868, for which campaign he received a medal. Returning to the United Kingdom on leave during the following year, he purchased his discharge, and, proceeding to Queensland, was engaged upon the erection of bridges for the Railway Department until he received his appointment as instructor to the corps. Models belonging to the corps were sent to the Intercolonial Exhibition held in Prince Alfred Park in April. These military engineering exhibits attracted much attention, and the Press, in commenting upon the matter, acknowledged the corps to be one of the most useful institutions connected with the Volunteer Force. A rifle team comprising all the officers and most of the non-commissioned officers of the corps visited Bathurst at Easter, the match resulting in a win for the country corps by 28 points. Lieutenant Arnheim presided at the second annual meeting of the Rifle Club on the 30th April, when Lieutenant Parrott was reappointed secretary, Corporal Stuart-Cansdell being elected assistant secretary and Sapper Carty

treasurer. Recent events had afforded proof of the increased interest evinced in the rifle practice, a favourable report being adopted, and the following members were elected as a committee :—Sergeants Turton and Fraser, and Sappers Phillips, Lenehan, Cordingley, Wilson and Nixon. About this time a very unique order emanated from the committee of the corps to the effect that “refreshments” would be provided on Saturday afternoons for working parties engaged on the battery in course of erection at the Victoria Barracks. In May, general information concerning individual scores of members was first posted up in the drill-room, a practice obtaining regularly ever since. There was a return shooting contest with the Bathurst Corps on the day after Queen’s Birthday, when the visitors, who lost the match by 34 points, were hospitably entertained. At the fourth annual meeting and a dinner on the 5th July, the report of the committee showed a steady performance of all work entrusted to the corps, and Sergeants Hill, Turton and Haining, and Sappers G. Lance and Nixon were elected as a committee. Among gentlemen of other branches of the force and civilians taking an interest in the corps, and who had up to this time availed themselves of the privilege of becoming honorary members upon the terms of the then rules and regulations, besides Lieutenant Coates, of Auckland, there were—Dr. Spencer, John Hurley, Esq., M.L.A., Lieutenant Masters, Messrs. Josiah Taylor, and L. A. Vessey and Captain William Henry Strong, of the General Staff, afterwards Lieutenant-Colonel on the Reserve List. The two latter had conspicuously identified themselves with the aspirations of the corps, especially Captain Strong, who had in many ways taken for a long while an interest in the welfare of the Engineers. Gifts of all scientific books and papers, etc., received were always acknowledged in the columns of the daily Press. On the 28th July, Sergeant Herlihy’s appointment as instructor was confirmed, and three nights in each week were set apart for engineering duties and one night monthly for infantry drill. After an inventory of stores and tools then in the possession of the corps had been made, the meagre articles specified, amounting to but a few picks and shovels, two or three 6-foot rods, a plank or two and a coil of rope, were placed in the custody of Sergeant Herlihy. The first of a series of lectures to the technical class was delivered by Lieutenant Parrott on the 29th July, the subject being “Military Works, their construction and utility.” Prior to the annual inspection on the 21st August, the following sappers were promoted to Lance-Corporals:—William Carty, Anthony Lenehan, George Lance, William J. Turton, John Cordingley, William H. Nixon and William Burbidge. Lieutenant Parrott now resigned the position of honorary secretary, and was succeeded by Sergeant Turton. For the convenience of members, programmes of parades were now, for the first time, printed upon

cards, for issue to members monthly. On the 24th August, the corps mustered strongly at the funeral of Commodore James G. Good-enough, R.N. The colony of Victoria had for ten years previously to the mother colony established an Engineer Corps which at the period of the initiation of its kindred company in New South Wales had become a very proficient and useful branch of and important factor in the Service. A friendly challenge for a rifle match forwarded to Melbourne on 13th January of this year being responded to, a contest took place on 28th August, each team competing at its respective butts and using Government large-bore rifles. As this was the first intercolonial venture on the part of this arm of Her Majesty's service, consequently more than usual interest was felt in the result. The weather proved to be similar at both ranges, and this fact, taken into consideration with the but little difference in the relative merits of the weapons used, viz., Snider and Enfield rifles, rendered an analysis of the results much more satisfactory than is generally the case in contests of a like nature. The Sydney team won by 45 points, Corporal W. Gow, of the Victorian Engineers, to whom a trophy was presented, making 68 points, the highest individual score in the match, and Sergeant Turton being top scorer of the N.S. Wales Engineers with 63 points. On the 6th September the Rifle Club adopted the practice of firing all shots at each range consecutively without cleaning the rifle. Signalling by means of lamps became quite a mania about this period, not only with the Engineers, but with several Artillery officers and others, who set their brains to work to invent lamps of various designs and styles in order, if possible, to supersede the regulation military lamp known as the "Chatham." The importance of ready inter-communication during a time of war both by day and night by a system independent of both the electric telegraph and the telephone cannot well be overrated, and with a knowledge of this fact several members of the Permanent and Volunteer Corps spent much time in the practice of signalling with lamps. Thus night after night literally luminous ideas and sparkling *bon mots* were flying over the heads of the unconscious citizens. Lamps of all kinds were pressed into the service, from the military "Chatham" to the common kerosene burner, and it soon became evident that even the carefully finished military instrument was unequal to the requirements of the operators, it being so constructed that it could not be worked beyond a certain slow rate of speed. Still, it must be borne in mind that the Imperial military authorities had laid down a certain rate of speed to avoid mistakes on service, and consequently needless repetitions of orders, and the "Chatham" lamp accomplished this purpose, and was, moreover, a strong portable one for the field. With a view of supplying a more rapid signal lamp, Mr. L. A. Vessey designed an apparatus, the practical ideas of which were carried out by Sergeant

Turton. A time trial between the heights of Darlington and Ultimo met with most encouraging results, when this lamp, only seven inches high, with a three-inch lens, was tested up to a distance of six miles, and a speed of eight words per minute attained, thus approaching very nearly the maximum speed possible in this system of telegraphy. This lamp was pronounced a perfect instrument of its kind. Two of the persons engaged in this pursuit got into an awkward dilemma one night, for while carrying on a conversation their labours received a whimsical interruption. An Artillery Volunteer officer (whom we will style A.) resided in one suburb, and an officer of Engineer Volunteers (whom we will call B.) lived in another. A. and B. frequently passed away an hour or two in the evening signalling. The most elevated position that could be conveniently procured was, of course, used as a stand for the lamp, and this was generally the corner post of a fence. One evening A. commenced in the usual manner, carefully adjusting his lamp, and flashed away. B. was also on the *qui vive*, and a cheerful conversation was proceeding, when, in the language of the novelist, A. felt a heavy hand placed upon his shoulder. The owner of this was also the proprietor of the premises, the fencing of which was being used as a signal post. Sternly did he demand the meaning of A.'s conduct, but not receiving a satisfactory reply, he went away, shortly afterwards returning, accompanied by a friend. Both then interrogated A., but, being only desired not to interrupt and annoy him, they gave him a peremptory order to depart forthwith. This was also disregarded, and the enraged householder then went for a policeman. Having, strange to say, found one of these useful functionaries when needed, he returned with him, and gave A. in charge as a suspicious character who had been prowling about his premises with a dark lantern. Fortunately, the constable happened to be an old New Zealand militiaman, and was thus enabled to explain matters and release A. from what might have proved to be rather a serious fix. A. all the time had been enjoying the joke quietly and telling B. about it, the last message being, "They have brought a constable to arrest me." Improvements in signalling lamps had naturally set in motion ideas of inventing some instrument or appliance for focussing the rays of the sun and transmitting words by the Morse alphabet by flashes, on the same principle as by lamps. It was with this view that Lieutenant Parrott had for some long time past been investigating the subject of solar and lunar telegraphy, and, aided by several scientific friends and brother officers in the force, he successfully worked the telegraphic system with his new signalling instrument, which he called a sematropé. This instrument, a modification of the heliostat invented by Captain Drummond, R.E., and which was used with great success in the triangulation survey of Great Britain, Lieutenant Parrott found could be adopted for the purposes intended by

means of the reflected light from the moon as well as the sun. Upon testing the sematrope within fifty hours of full moon, messages were sent with great success, the light reflected surpassing that shown by an ordinary Chatham signalling lamp, which is visible to the naked eye up to about five miles. With full moon it was found that the sematrope could be effectively used up to a range of ten miles. Lieutenant Parrott had sent an account of his instrument, with descriptive diagrams, to the English science papers, in which it was published. The drawings were made by Sergeant Stone, and the mechanical work in connection therewith was performed by Lance-Corporal William J. Turton and Sapper William H. Walker. Major Pratt, of the Royal Engineers, while in Sydney in September, in charge of a detachment *en route* to Fiji, informed Lieutenant Parrott that he had seen these descriptions of the sematrope some time before he left Chatham, and that up to the time his detachment had left England no one had been successful in perfecting an instrument for signalling by means of the sun. The credit, however, of the discovery was claimed about the same time by a Mr H. C. Manse, of the Persian Gulf Telegraph Department, and his instrument, which the British Military authorities improved upon and named the heliograph, being somewhat on the same principle, but with duplex arrangements, must have been produced contemporaneously with the sematrope, although the latter had been in use experimentally in New South Wales for several months previously. A great amount of consideration was given by the Press to the asserted claims to the invention, but the credit of having originated the first practical scheme of carrying on army signalling by this means, claimed by Lieutenant Parrott and his corps, has since been acknowledged by military authorities throughout the world. Towards the close of the year sites for stations were selected for a systematic practice in signalling. Positions were taken up for the purpose at the Victoria Barracks, Paddington; Woollahra, near the windmill; Sydney University; Petersham, near the Church of England; Ashfield, near the Oddfellows' Hall; North Shore, near Holtermann's Tower; and Surrey Hills, at the top of Cooper-street. Squads were told off to the various stations around this circuit, and practice was regularly carried on three times weekly. Lieutenant Parrott presented his sematrope to the corps, and, by consent of the committee, it was allowed to be forwarded to the Philadelphia Exhibition, U.S.A., early in December. The same instrument had been previously shown at the Sydney Intercolonial Exhibition in April. The committee provided material to enable members to make three additional sematropes. At the old Masonic Hall, York-street, on the 7th September, the non-commissioned officers of the corps entertained at dinner the non-commissioned officers of a detachment of Royal Engineers who had arrived a few days

previously from England on their way to Fiji, and who, during their sojourn in Sydney, were quartered at the Victoria Barracks. Colour-Sergeant Gardner, of the Engineer Volunteers, presided, and, in proposing the toast of "Our Guests of the Royal Engineers," said "A chance had occurred which might never occur again. It was with a perfect feeling of gratification that he saw Imperial troops once more in the Colony, for after the departure of the Royal Army some years ago he did not expect to see them here again. They had met for the purpose of welcoming the Royal Engineers, and at the same time to show their loyalty. No one wished their guests prosperity more than the Engineer Volunteer Corps of New South Wales." Amidst cheering, the Sergeant-Major of the Royal Engineers responded, thanking them for the kind manner in which they had been received. He said "Their company never expected such an entertainment as that tendered to them, nor to find an Engineer Volunteer corps in the Colony. He hoped they would advance; in fact, he was sure they would do so. The Royal Engineers, he could plainly see, could not teach the Sydney Engineer Volunteers much, for from what he had heard of the batteries of the harbour, he was inclined to think they had examples of military works which were quite equal to the batteries at home." A jovial smoke concert followed, in which the officers of the corps joined. It was arranged by the Brigade authorities that from the 4th October attendance at signalling, mining and general working parades should count as ordinary drills. On the 3rd November a vote of thanks was accorded to Sapper Petrie for the presentation of a pair of inlaid picture frames of his own manufacture, which still grace the walls of the officers' room at the dépôt. With a view of checking the issue of books, maps and plans to members, Sergeant Herlihy was appointed librarian of a collection which had been augmented from time to time by gifts from friends and the Government Printer. After the Commandant's parade on the 7th December, Lieutenant Parrott was presented by Captain Rowe, on behalf of the members of the corps, with a handsome sword, it having been the general wish that some tangible recognition should be made of Lieutenant Parrott's services, he having worked hard and shown by his labours that he not only possessed talent, but had the interest of the Engineers at heart. The musketry report for the year placed the corps, armed with only the Snider rifle, twelfth in merit with the force. Eighty members fired, thirty-seven obtaining badges as marksmen, a large proportion of the remainder being first-class shots. Sapper Cordingley distinguished himself as a prize-winner, and Sergeant Turton as the best shot in the corps.

CHAPTER VI.

During the year 1876 there was a general exodus of prominent members who had been associated with the company for some considerable time. Sergeant Herlihy, who, although a good instructor, possessed such a decided brogue that it was often very difficult for the members to either thoroughly understand his word of command or retain their equanimity whilst on parade, resigned the office of instructor on the 24th January, and Sergeant Hill temporarily filled the breach. Upon relinquishing duty with the corps, Sergeant Herlihy was the recipient of a valedictory address from the non-commissioned officers of the Permanent Military Staff, and shortly afterwards received an appointment as overseer in the Roads and Bridges Department. At a special meeting after parade on the 2nd February, called for the purpose of appointing a member to the second lieutenancy, Colour-Sergeant Gardner and Corporal Stuart-Cansdell were nominated as candidates, but the latter retiring from the contest, Colour-Sergeant Gardner was selected. Early in March, Lieutenant Arnheim, who had been on extended leave of absence, retired on his rank, being permitted to wear the uniform of the corps. He was presented with a handsome illuminated address and elected an honorary member in recognition of his past services. About the same time, Sergeant Turton, another energetic member, also resigned on being assigned the charge of the locomotive workshops at Bathurst. In a rifle match with the renowned No. 1 Company of the First Regiment of Rifles on the 25th March, the Engineers were defeated by 114 points. At the third annual meeting of the Rifle Club on the 5th May, the report, as adopted, among other matters, referred to an increase in the number of members. On the 9th June, Second Lieutenant Parrott was gazetted first-lieutenant, and a week later, in return rifle matches with No. 1 Company First Regiment of Rifles and the South Sydney Corps, the Engineers were again defeated, the primary cause of this failure being inferior weapons. The annual inspection on 15th July called forth excellent comments by the Commandant on the general bearing and efficiency of the corps. Captain Rowe presided at the fifth annual meeting on the 19th July. The report of the committee stated that it was a matter of much regret that the past year, although not the least progressive of the corps, yet had not realised some of its anticipations. This was partly accounted for by the want of a paid

engineer instructor, and the lack of appreciation in the advantages of the Technical Military Class, as evidenced by the small attendance thereat. Sergeant Hill received the thanks of the corps for his indefatigable zeal and self-imposed labour upon the earthwork battery at which the corps had been employed during the year, and which was now well nigh completed. In musketry the result was somewhat inferior to the position held formerly. A noticeable good feature, however, was the continuance of the service of members, for, notwithstanding forty-three had completed their five years' service and obtained land orders, there had been but one resignation. The funds, too, were in a very flourishing condition, and money was voted towards the expenses of a rifle team of the force proceeding to Philadelphia, U.S.A. Corporal Stuart-Cansdell was appointed honorary secretary of the corps, a position continuously occupied by him for very many years. On the 29th July the annual dinner was held at Manly Beach, the company, attended by the Volunteer Artillery Band, repairing thither by steamer. The corps, on arrival at the pier, was cordially welcomed by a large number of residents, to whom the appearance, in those days, of such a number of their gallant defenders at one time was a rather unusual occurrence. After a few evolutions in Ivanhoe Park, the company was divided, and a sham fight ensued. Upon returning to the Park, refreshments were partaken of in the pavilion, which had been tastefully decorated. Besides members and honorary members of the corps, a large number of the leading residents of Manly were present as guests. The evening was spent very pleasantly, the military returning to the city at a late hour, all well satisfied with the manner in which they had celebrated their fifth anniversary. Quartermaster-Sergeant Bethel, who had very effectively held office ever since the formation of the corps, resigning on 17th October, the appointment of Sergeant Hill, who succeeded him, was confirmed on the 1st November. Nominations for the post of Second-Lieutenant were again called for on the 26th October, as the election of Colour-Sergeant Gardner had been declared by the Brigade authorities to be null and void, because the candidate had not passed the prescribed examination prior to being elected. Colour-Sergeant Gardner, however, did not respond to the invitation, and Corporal Stuart-Cansdell, having been again nominated by Sergeant Stone and Sapper W. H. Walker, and then having passed a most satisfactory examination for the vacant commission, was elected unanimously at a full meeting of members. Sergeant Stone, resigning shortly afterwards, was engaged with others, under the direction of Gustave A. Morell, Esq., C.E., in designing and drafting plans for the harbour fortifications, as recommended by the Defence Commission, and approved and carried out by Lieut.-General Sir William Jervois, R.E., and Major-General Sir Peter Scratchley, R.E.

CHAPTER VII.

At the third rifle match with the Bathurst Corps at the Paddington Butts on the 15th January, 1877, the conditions were as usual, but the Engineers, being armed with an inferior rifle, were allowed an extra shot each man at the long ranges. Being closely contested, this match was very exciting, for at the 200 yards' range the Engineers were leading by five points; at 500 yards the Bathurst team had improved their position by two points; but at 600 yards the old "gas-pipe" proved treacherous, and left the Engineers the losers by 15 points. On the evening of the 20th February, the corps, headed by the band of the Artillery Cadets, marched through the principal streets of the city, and, halting at Hyde Park, near St. James' Church, Captain Rowe was afforded an opportunity of presenting silver cups to Quartermaster-Sergeant E. Hamilton, of the Bathurst Corps, and Lieutenant Parrott, who, as chief scorers in the then recent match, had each made 46 points. On the 20th March, Corporal Lane Sharp was buried with military honours. Three days later Mr. James Masters, late corporal of the Royal Engineers, having been appointed a probationary sergeant on the Volunteer Permanent Staff, was posted as instructor to the corps. When a youth, he had served in the Royal Navy during the Russian war, receiving Baltic, Crimean and Turkish medals; then in the Constabulary, and afterwards followed his trade as a brickmaker. Joining the Royal Engineers on the 14th November, 1866, at the School of Military Engineering, Chatham, he was promoted to the rank of corporal in December, 1867, and appointed Assistant Fieldwork Instructor in March of the following year, teaching several officers, including His Royal Highness, Prince Arthur, and Lieutenant Felician Rola de Wolski, R.E., subsequently Colonel commanding Engineers in New South Wales. After instructing the First Regiment of the Durham Engineer Volunteers at Yarrow-on-Tyne from August, 1868, until May, 1871, Sergeant Masters was transferred to the First Regiment of the Newcastle-on-Tyne Engineer Volunteers (Sir William Armstrong's Corps, Elswick) as Sergeant-Major, holding that position till May, 1876, when he purchased his discharge. Upon Sergeant Masters's advent to the corps technical instruction assumed greater proportions, and infantry drill, which had hitherto absorbed the attention of the company, was now considered a subordinate matter, whilst

also it was notified that at the next inspection by the Commandant there would be an examination in iron-gabion and brushwood fascine work ; tracing works and extending working parties ; building sandbag revetments, embrasures and loopholes ; revetting with gabions, fascines and hurdles ; laying gun platforms, and also constructing rifle-pits and field kitchens. This change in the programme proved very acceptable indeed, as the hitherto gradual decline of the Engineers to the status of a mere infantry company had become dissatisfactory in the extreme to the corps, and would doubtless by such time have taken the heart out of any body of men, save resolute mechanics, of whom the rank and file were fortunately entirely composed. Signalling was still carried on by a certain section of the members, but, principally, more as a pet hobby than a duty, it being instructive amusement of an evening between parties residing at or near prominent positions or points of vantage around the city of Sydney. The technical class, too, came in once again for a fair share of recognition, so that there was a constant run of various duties during each week. In shooting matters also practice was regularly carried on monthly, for, in addition to considerable sums of money voted towards both company and rifle club prizes, a special trophy, offered by Captain Rowe, caused very keen competition. Another rifle match—the fourth with the Bathurst Company—was contested on Easter Monday, when 20 points at each range were conceded to the Engineers on account of the Snider rifle, the country corps winning by 28 points. In honour of this event, Captain Rowe presented silver tankards to Captain (afterwards Lieutenant-Colonel commanding the Cadets of the Colony) Alfred Paul, of the Bathurst Company, and Sergeant Fraser, who were top scorers. On the 9th May, Colonel Richardson approved of arming the corps with the Henry rifle, in order that members might have a chance of competing on an equal footing with other branches of the service at the Rifle Association and other meetings. However, the new rifles were not issued until the 22nd August. On the 29th May Corporal Stuart-Cansdell was gazetted Second-Lieutenant, his promotion having been deferred until more than six months after he had qualified for and had been elected to the vacant office. Sappers Petrie, C. H. Hund, Mather, Coburn, Phillips, Shearer, Pitt, W. H. Walker, Ayton, George Hayman and Buist were appointed lance-corporals on the 30th May. Colour-Sergeant Gardner presided at the fourth annual meeting of the Rifle Club on the 25th June, when Lance-Corporal Hund, who had filled the office of treasurer since the resignation of Lance-Corporal Carty some nine months previously, was re-appointed. At the sixth annual meeting of the corps, held after parade on the 25th July, Captain Rowe presided over a good muster at the Oddfellows' Hall, Elizabeth-street. The treasurer's report showed the large cash credit balance of £252. Quarter-

master-Sergeant Hill and Corporals Cordingly, Nixon, Shearer and W. H. Walker were elected as a committee. At the termination of this meeting the members withdrew to another apartment, where the customary banquet was served. In consequence of some little friction relative to disparaging remarks said to have been made concerning the competing of certain honorary members at prize-shooting meetings, Staff-Sergeant Furnish and Brigade Sergeant-Major James Hill both resigned their membership. Upon an inquiry into the conduct of the malcontents towards these honorary members, a resolution of the committee deprecating the *contretemps* was passed and ordered to be conveyed to them. This affair was instrumental in bringing about some new conditions under which the future admission of honorary members was to be made to the corps. From the 22nd September Lieutenant Stuart-Cansdell's system of handicapping was adopted by the Rifle Club, this being accomplished by allowing extra shots and counting the same backwards from the fifth shot actually fired. Much merriment was caused in military circles by the appearance in *Sydney Punch* of a skit in reference to some pertinent remarks by Major W. B. B. Christie, the then Major of Brigade, upon the outpost operations of the Volunteer Force on the 6th October. In the memorandum referred to Major Christie had said, among other things, "that the officer commanding the Engineer Corps, immediately on arrival, should have taken steps for executing a rough survey of the village of Randwick, as preliminary to the adoption of other steps necessary for rendering it defensible," and also "that a signal station should have been established on the church." In the cartoon published Captain Rowe was depicted on an elevated part of the field, with pencil and compasses in hand, hastily executing upon an improvised drawing board a plan of a flying survey of the position, while in another part of the field of operations Lieutenant Parrott was portrayed by a grotesque and exaggerated physique sitting on and dangling his legs over a very diminutive church tower (St. Jude's), deciphering signals from afar by the aid of a telescope of gigantic proportions. Over this matter the officers alluded to received much humorous pleasantry from their comrades-at-arms. But it is only fair to mention here that no instructions had been previously issued for these duties to be carried out. In November there was considerable discussion among members concerning the future remuneration to be offered to an engineering instructor, Staff-Sergeant Masters having resigned on account of his being able to make a far more profitable living at his trade. In the musketry course for this year Sergeant Haining was the best shot in the company, he having also won, for two consecutive years, the gold medal of the Rifle Club. The corps had fallen off terribly in its relative merit with the force generally, being the twenty-fifth out of thirty-two companies competing. On the 15th December the

remains of Sapper Collopy were buried with military honours at Rookwood, the funeral party being under the command of Lieutenant Stuart-Cansdell. Within the then past few months several more honorary members were admitted to the fellowship of the corps. Among these was Captain Morris, of New Zealand.

CHAPTER VIII.

Lieutenant Parrott, who had met with a very severe accident when out surveying at Bulli, having been laid up for nearly six months, was granted further leave of absence from the 11th January, 1878. Captain Rowe had also been absent from duty for some time on account of urgent domestic matters, so that the work of keeping the corps together had devolved mostly upon Lieutenant Stuart-Cansdell. This was at a critical time, too, when unremitting attention to the various extra duties was necessarily imposed, the military force in general being discontented with the apathy of the Government and fast dwindling down in numbers consequent on the continual stoppage of recruiting. On the 16th January, Colour-Sergeant Gardner tendered his resignation, having occupied his post, including the treasurership and other onerous functions, with great ability ever since the initiation of the corps in 1869. His severance with the Engineers was much regretted, and in consideration of his services he was unanimously elected an honorary member. About this time it was notified that there would be an inspection of the company early in the year in visual signalling. On the 18th February the Commandant sanctioned the following appointments to the corps:—Sergeant William Hill (who had been acting orderly and quartermaster-sergeant for a long while) to be colour-sergeant, Lance-Corporal John Brown Mather to be quartermaster-sergeant, 1st Corporal Hubert Granville to be sergeant, 2nd Corporals Thomas McKenzie and John Cordingley and Lance-Corporal W. H. Walker to be 1st corporals, and Lance-Corporals William H. Nixon, William Petrie and Edward H. Burbidge to be 2nd corporals. On the 29th March Colour-Sergeant Hill was for the second time attached to the Permanent Staff for duty as acting instructor. The 10th April was what one might term a red-letter day with the Engineers, inasmuch as a double event came off at the Protestant Hall, Castlereagh-street.

This affair embraced the reading of an interesting and highly instructive paper on the "Defences of New South Wales" by Lieutenant Parrott, and a presentation to Mr. Gardner, late colour-sergeant and treasurer. There was a numerous attendance, presided over by the Commandant, Colonel Richardson, who was supported by his staff and other officers, and also by many influential citizens, the proceedings being enlivened by the rendering of musical selections by the Volunteer Artillery Band, whose services were kindly given under the baton of Mr. William Cork. Lieutenant Parrott, in his discourse, directed attention to the necessity for defence, and reviewed the then improvements in artillery, ships of war, armour-plated batteries, torpedoes, waterway obstructions, and methods of illuminating operations at night, all of which subjects, he contended, bore intimately on the question of coast and harbour defence, and necessarily a matter for the serious and united attention of the Governments of the Australian Colonies. At the conclusion of this lecture, on the motion of the Chairman, who referred to the labours of Lieutenant Parrott in complimentary terms, a unanimous vote of thanks was accorded him, after which the secretary, Lieutenant Stuart-Cansdell, on behalf of the corps, read an address, which was illuminated and suitably conveyed to Mr. Gardner, the thanks of the corps for long and arduous services rendered. Mr. Gardner responded feelingly for the kind appreciation of his work, and the meeting terminated with a presentation of prizes for shooting. A fortnight subsequently a second part of Lieutenant Parrott's lecture was delivered at the old Temperance Hall, Pitt-street, Major Jaques (afterwards retired Lieutenant-Colonel) of the 2nd Regiment of Rifles, presiding. There being a prospect of a new era approaching, accumulated funds were very lavishly expended in various objects, including £40 to the Rifle Club, £10 to the widow of Corporal Lane Sharp, and £28 to the widow of Sapper Collopy. A rifle team visited Bathurst on 18th April to take part in one of those memorable contests in which the Engineers and their Bathurst comrades were always good friends. As Captain Rowe remarked at the luncheon upon the day of this match, "An attachment had sprung up between the two companies, for whenever a proposal was made by his corps to visit any country town with the object of firing a match, Bathurst was always the first place mentioned." "Nothing afforded greater delight to the Engineers than to try and beat, in a friendly away, their comrades-at-arms in their own nest." The Engineer team upon this occasion included Captain Rowe (who was accompanied by his wife), Lieutenants Parrott and Stuart-Cansdell (the latter in the capacity of secretary), Colour-Sergeant Hill, Sergeant Haining, Corporals McKenzie, Cordingly, Nixon, Petrie and Phillips, and Sappers Arney, R. Mann and J. Ryce. This contest was really a "triangular dual," being with representa-

tives of Mudgee as well as Bathurst, and commenced on Easter Monday in the midst of a gale, which continued with more or less violence during the whole day. The Bathurst and Engineer teams having tied at the 500 yards' range, the finish was indeed an exciting one, the match being lost by the latter team by one point only, the scores being:—Bathurst 319, Engineers 318, and Mudgee 299 points. The captains of the teams were, respectively:—Lieutenant Curtis, Lieutenant Parrott and Quartermaster-Sergeant McNeill. The Engineers, hospitably entertained, left the Western City of the Plains well pleased with the eventful trip. The fifth annual meeting of the Rifle Club was held on the 17th May. Lieutenant Parrott, in opening the proceedings, regretted that he had been unable for many months to attend to his duties, and deemed it only right to refer to the very able manner in which the assistant secretary, Lieutenant Stuart-Cansdell, had performed the two-fold duties imposed upon him, not only in matters pertaining to the Rifle Club, but to the corps generally. The report mentioned that there was evidence of a fresh impetus being given to shooting, without doubt chiefly due to the issue of the long-promised Henry rifles in lieu of the old converted Sniders. The following members comprised the new committee:—Colour-Sergeant Hill, Sergeant Haining, Corporals Phillips, Shearer and Nixon, and Sappers Ryce and Mann. Captain Rowe presided at the seventh annual meeting of the corps on 17th July. The following members were selected by ballot to serve as a committee:—Colour-Sergeant Hill, Corporals Cordingly, Nixon, Walker and Shearer, and Sapper G. Lance; Corporal Walker being appointed treasurer in the place of Mr. Gardner. The printing of one hundred copies of Lieutenant Parrott's lecture on the "Defences of New South Wales" was sanctioned, and it was also resolved to discontinue the usual monthly shilling subscription to the funds of the company. The report of the Committee of Management showed, among other matters, that the shooting powers of the corps as a whole had seriously deteriorated during the then past twelve months, the relative position at musketry course being inferior to that of any previous year. This was the last annual meeting of the kind ever held in connection with the corps, and it terminated with ringing cheers for Her Majesty the Queen and the officers. The last annual dinner followed a week later, being held in the old Masonic Hall, York-street, the band of the Volunteer Artillery kindly attending. Captain Rowe occupied the chair, and among the sixty guests present were Lieutenant-Colonels Watson Wilson and Jaques, Lieutenant Arnheim, Mr. Gardner, and Brigade Sergeant-Major Hill. As previously mentioned, there had been for some time signs of a change impending in the military service of the Colony, and now a special Brigade Order was issued to the effect that all arms, accoutrements and stores,

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